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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/828,745	04/21/2004	Michael L. Whitehead	4011	5487
7590	06/05/2006		EXAMINER	
Mark Brown Suite 130 4400 College Blvd. Overland Park, KS 66211			ISSING, GREGORY C	
			ART UNIT	PAPER NUMBER
			3662	

DATE MAILED: 06/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/828,745	WHITEHEAD ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Gregory C. Issing	3662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on \_\_\_\_.
- 2a) This action is FINAL.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_ is/are allowed.
- 6) Claim(s) 1-30 is/are rejected.
- 7) Claim(s) \_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date 4/21/04.
- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_.

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1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 19 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 19 is directed to a "data signal" which is not one of the statutory categories of invention.

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 18 and 19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 18 lacks an enabling disclosure since the specification fails to provide any information regarding program code with instructions for causing a computer to implement a method for receiving and acquiring signals and computing position. Claim 19 is non-enabling since the specification fails to sufficiently disclose how a data signal is capable of performing the steps of receiving and acquiring signals and computing a position.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 2-4, 6, 11, 12, 14, and 24-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 2, the language "said slave receiver" is indefinite since it is unclear to what this refers.

In claim 3, it is unclear what is being switched regarding the language "switching from".

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In claim 4, the language "said carrier phase differencing" is indefinite. Moreover, it is unclear how the method is limited by the language particularly since it is unclear what the scope of "wherein said carrier phase differencing includes real time kinematic solutions."

In claim 6, the language "said first antenna said second antenna" fails to clearly set forth the subject matter. In claim 6, "said third antenna" is indefinite since claim 1 only discloses two antenna.

Claim 11 is indefinite since "said third plurality of satellite signals" lacks a proper antecedent basis.

Claim 12 is indefinite due to the lack of clarity of "said carrier phase differencing include" RTK solutions. Additionally, "said third plurality" lacks a proper antecedent basis.

Claim 14 is indefinite due to "said third antenna."

In claims 24 and 29, the language "from comparable satellites respectively" is indefinite

Claims 25 and 27 are duplicative.

Claims 26 and 28 are duplicative.

Claims 24 and 29 are duplicative.

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-18 and 20-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Geier (5,202,829).

Geier discloses a system and method (Figs. 1 and 2, eg) for measuring relative position of slow-moving points in close proximity in view of a "master" GPS receiving system 52 and a plurality of "slave" GPS receiving systems 63 on a plurality of tailbuoy sensors 20. In view of the fact that all of the receiving sensors are in proximity to one another and determine pseudorange and pseudorange rate, the reception and acquisition of satellite signals is "substantially simultaneous." A navigation computer 54 calculates a plurality of real-time separation vectors between the master sensor and each of the plurality of slave

sensors (4:19-21). The navigation computer processing respective pairs of information with respect to the master and each slave (tailbuoy), inherently "switches from the respective sets of data. The receivers are within sufficient proximity and would be capable of a wired communication, particularly in light of the fact that a streamer cable couples the ship to each tailbuoy. since the processing includes differencing, signals from the master and each of the tailbuoys are combined in respective measurements and determine a relative geometry therebetween. The master (ship) has a database of satellite positions and therefore is aware of the satellite geometry and optimal selection thereof.

8. Claims 1, 4, 5, 7-9, 12-17, 18 (as best understood), 20, and 23-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Hanseder (6,253,160).

9. Hanseder discloses first and second receiving means 13A/13B coupled to respective receivers 22A/22B for receiving and acquiring sets of satellite signals, and a processor 21 for determining position from the received signals using RTK solutions.

10. Claims 1-3, 5-7, 9-11, 13-15, 17, 18 and 22-24, 26, and 28-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Kucik (6,657,585).

11. Kucik discloses a plurality of proximate, tethered GPS stations 30 for receiving and acquiring a plurality of respective sets of GPS signals and a computing means 26 for computing the position of the GPS receivers. Each of the stations further comprises multiple GPS antennas 44. A multiplexer 50 switches among the signals from the respective stations. GPS receivers use either or both of the carrier or code phase in the determination of pseudoranges.

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. Claims 1-18 and 20-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kucik in view of Whitehead et al.

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Kucik teaches the subject matter substantially as claimed as previously set forth above including the use of WAAS differential correction. Whitehead et al teach the conventionality of carrier and code phase differencing for RTK solutions to utilize the WAAS to greater advantage.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Kucik by incorporating the WAAS differencing techniques of Whitehead et al to provide an increase in accuracy in view of the teachings of Whitehead et al.

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Dooley (6,646,603) and Rorabaugh (6,922,635) disclose determination of relative position between two objects using a plurality of satellite signals as well as a communication between the two objects.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory C. Issing whose telephone number is (571)-272-6973. The examiner can normally be reached on Monday - Thursday 6:00 AM- 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Tarca can be reached on (571)-272-6979. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Gregory C. Issing  
Primary Examiner  
Art Unit 3662